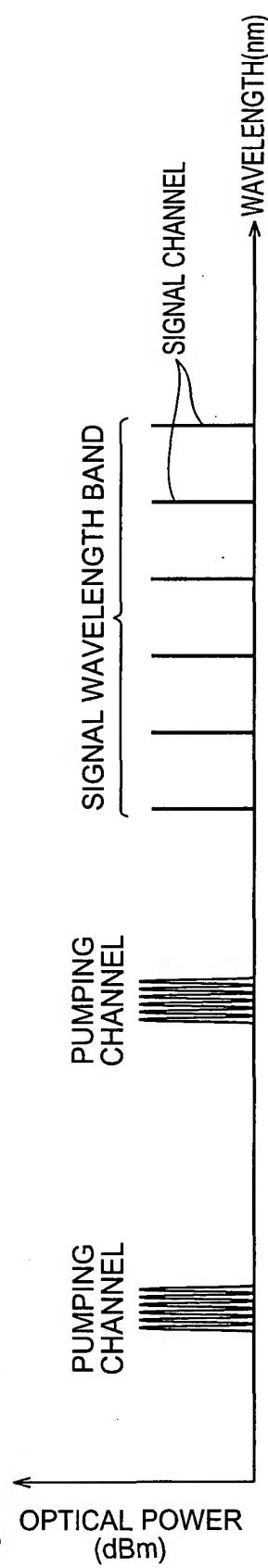
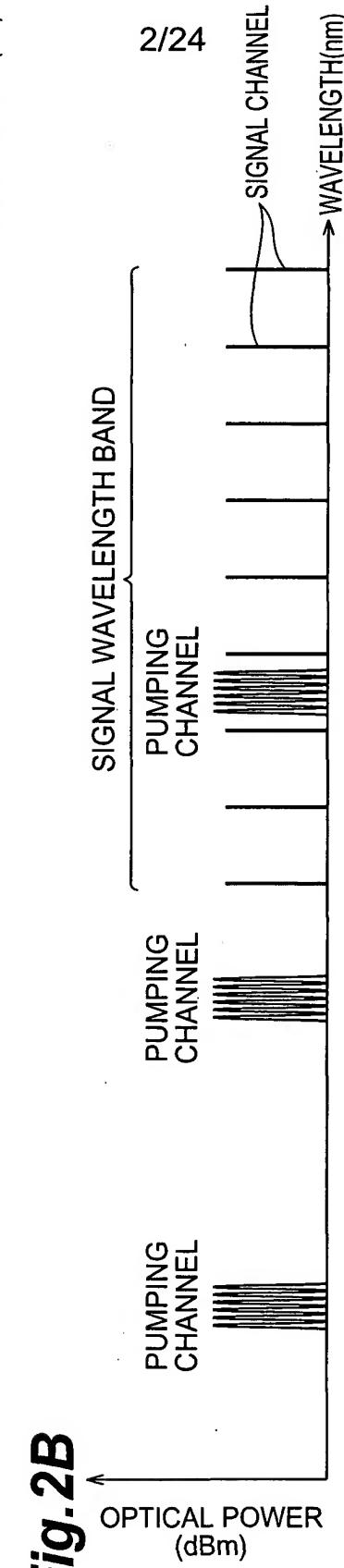
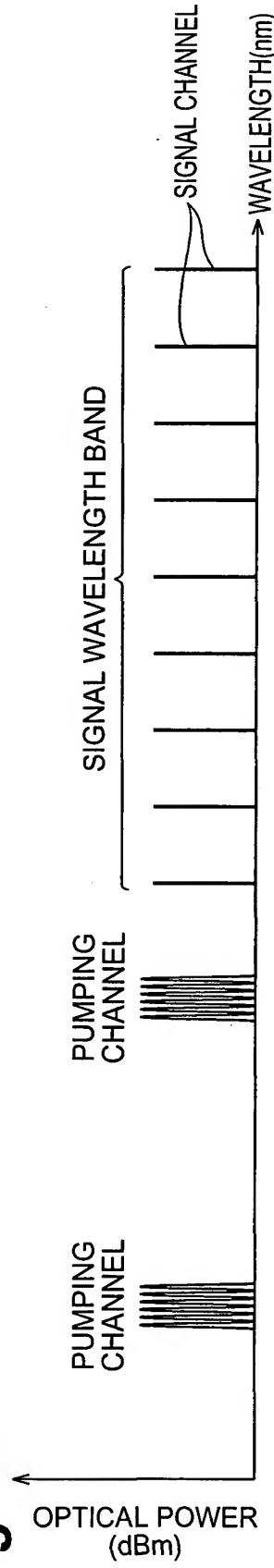


Fig.1

Fig. 2A**Fig. 2B****Fig. 2C**

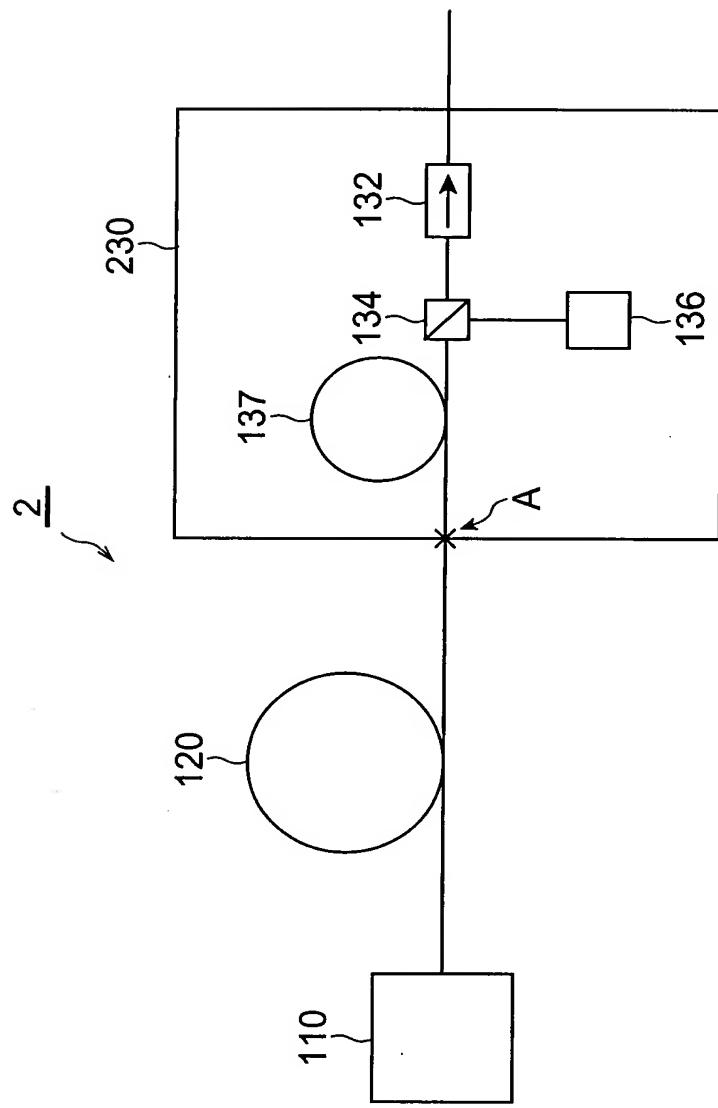


Fig.3

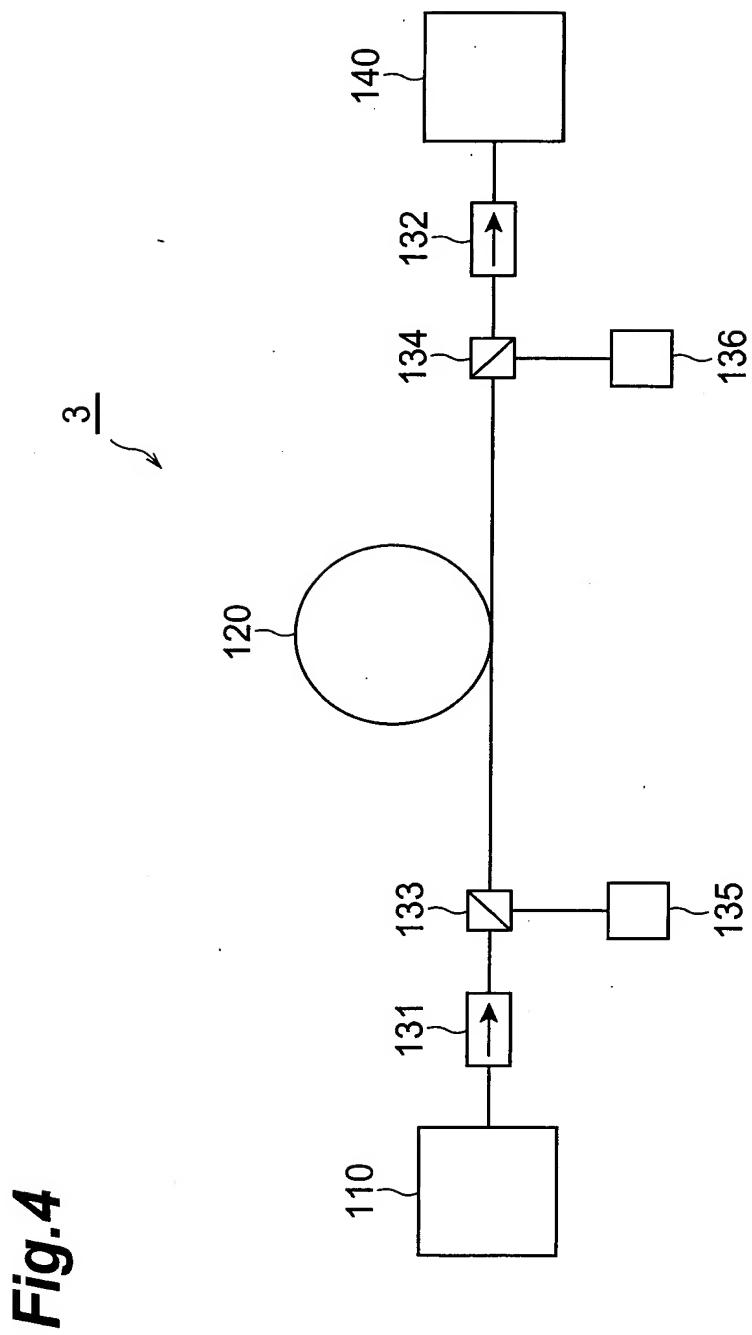


Fig.4

5/24

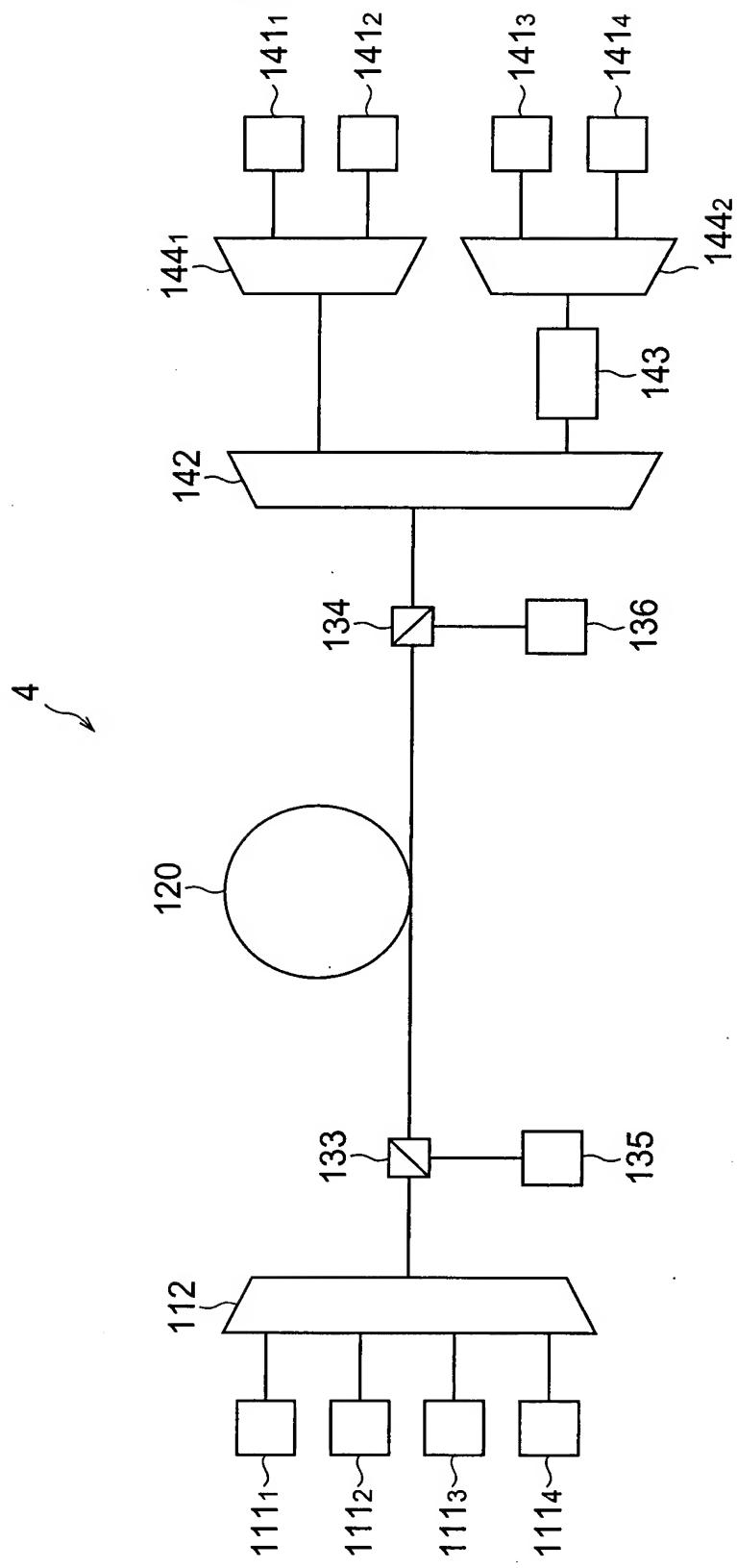


Fig.5

6/24

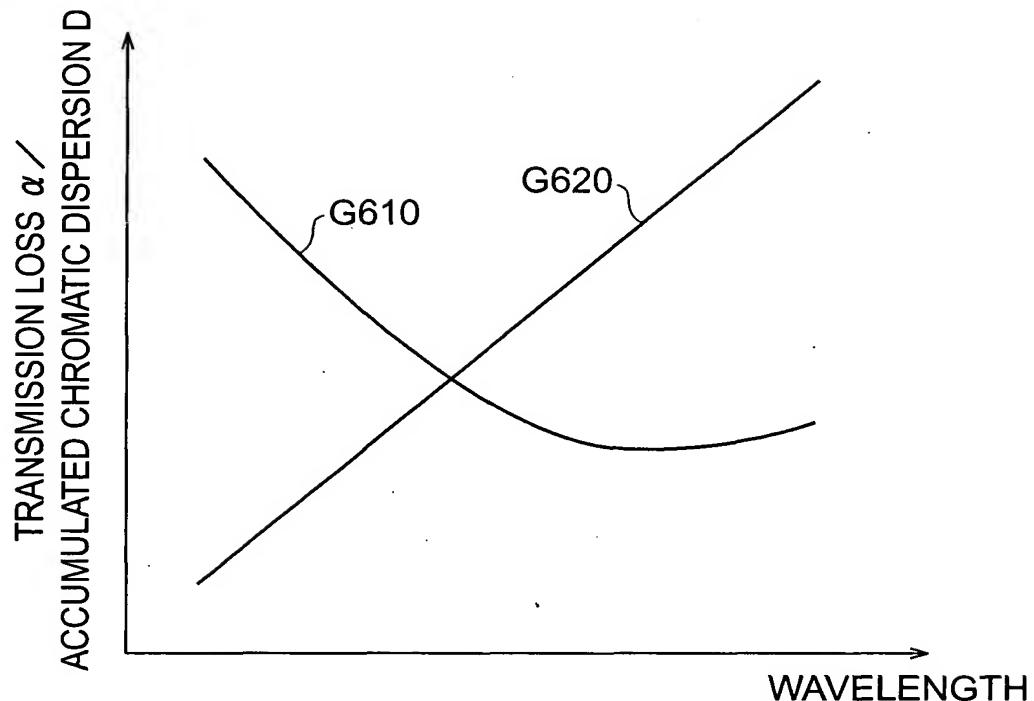
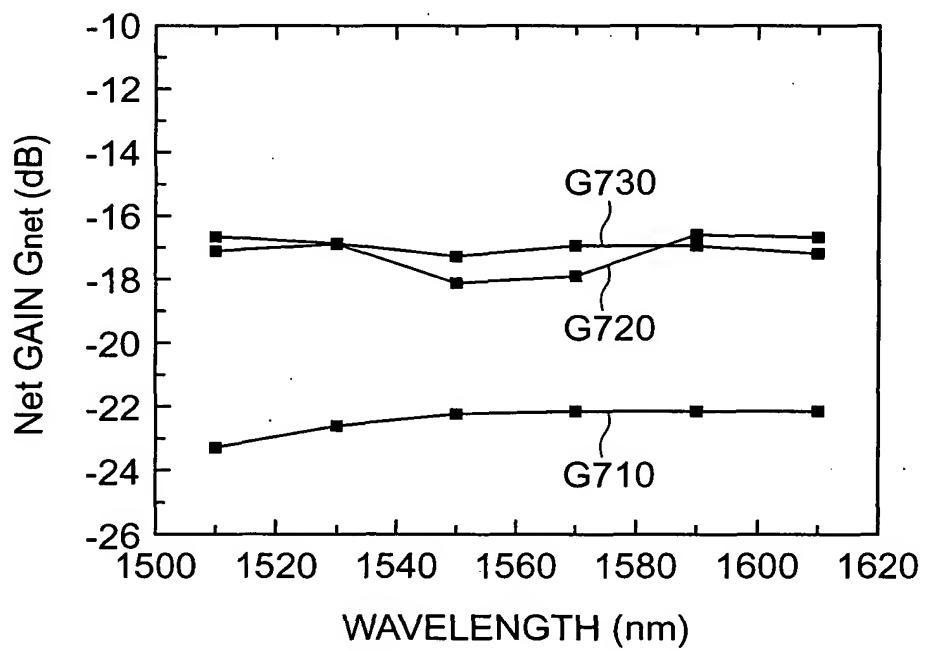
Fig. 6**Fig. 7**

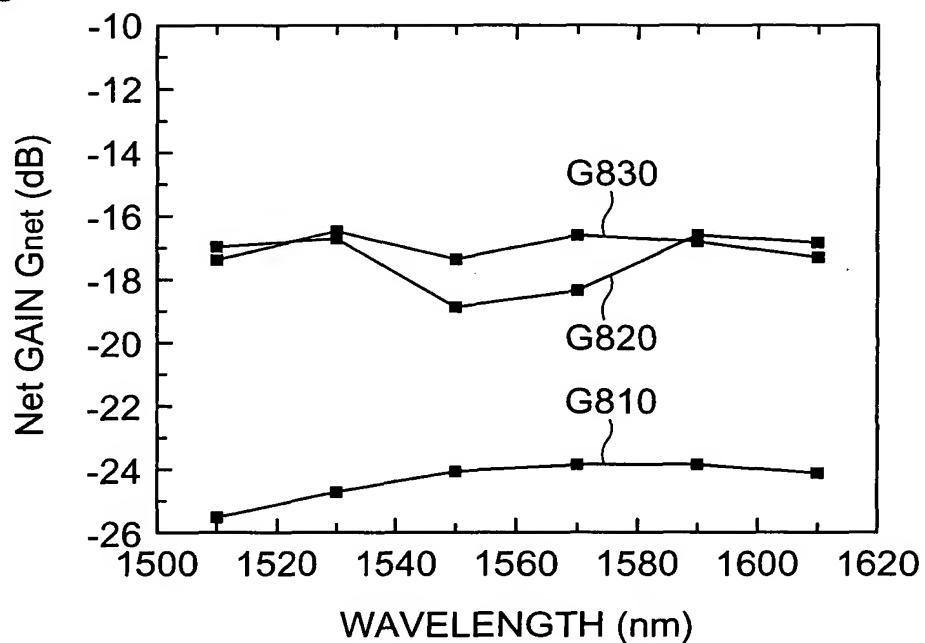
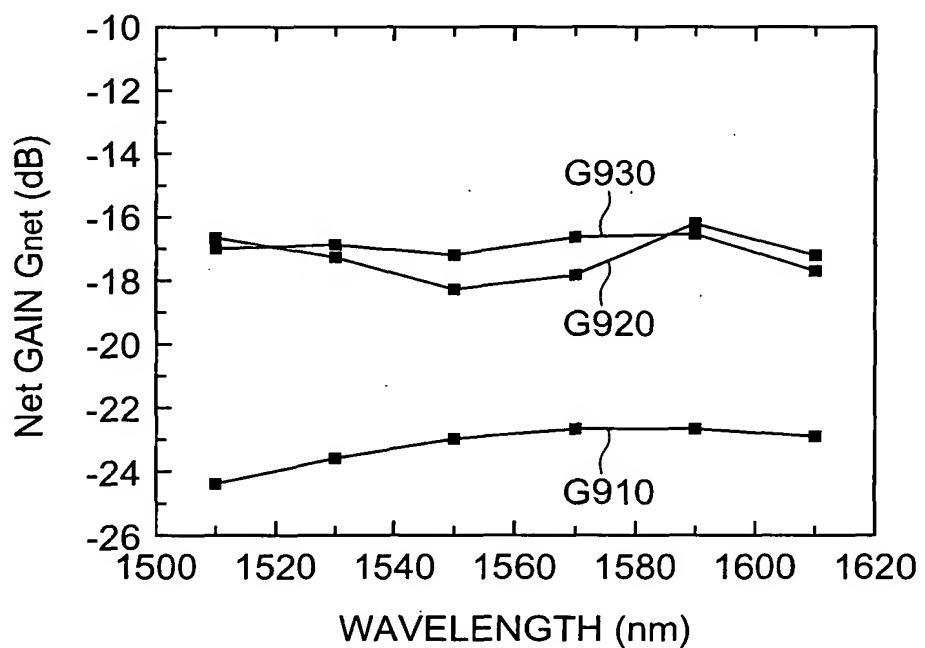
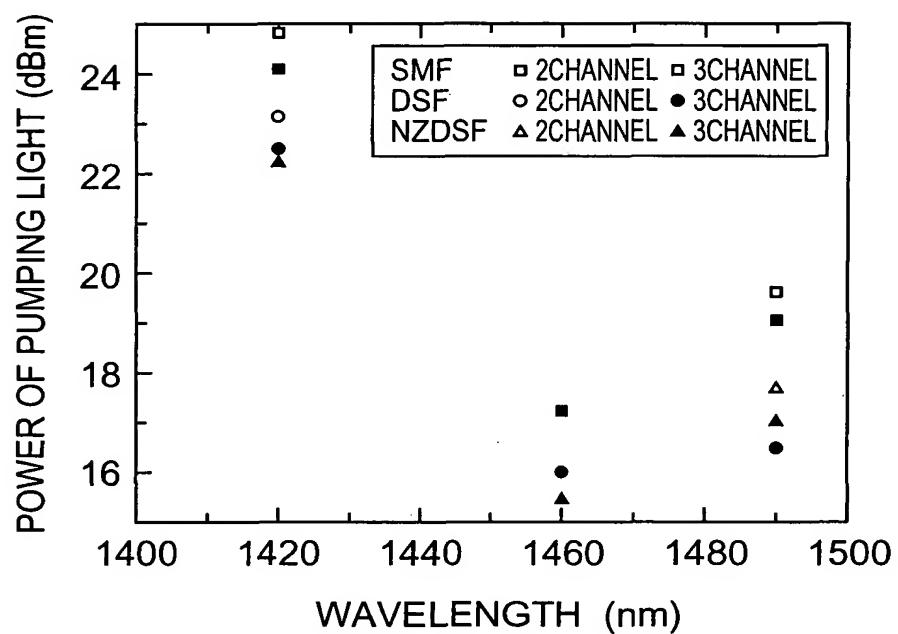
Fig.8**Fig.9**

Fig. 10

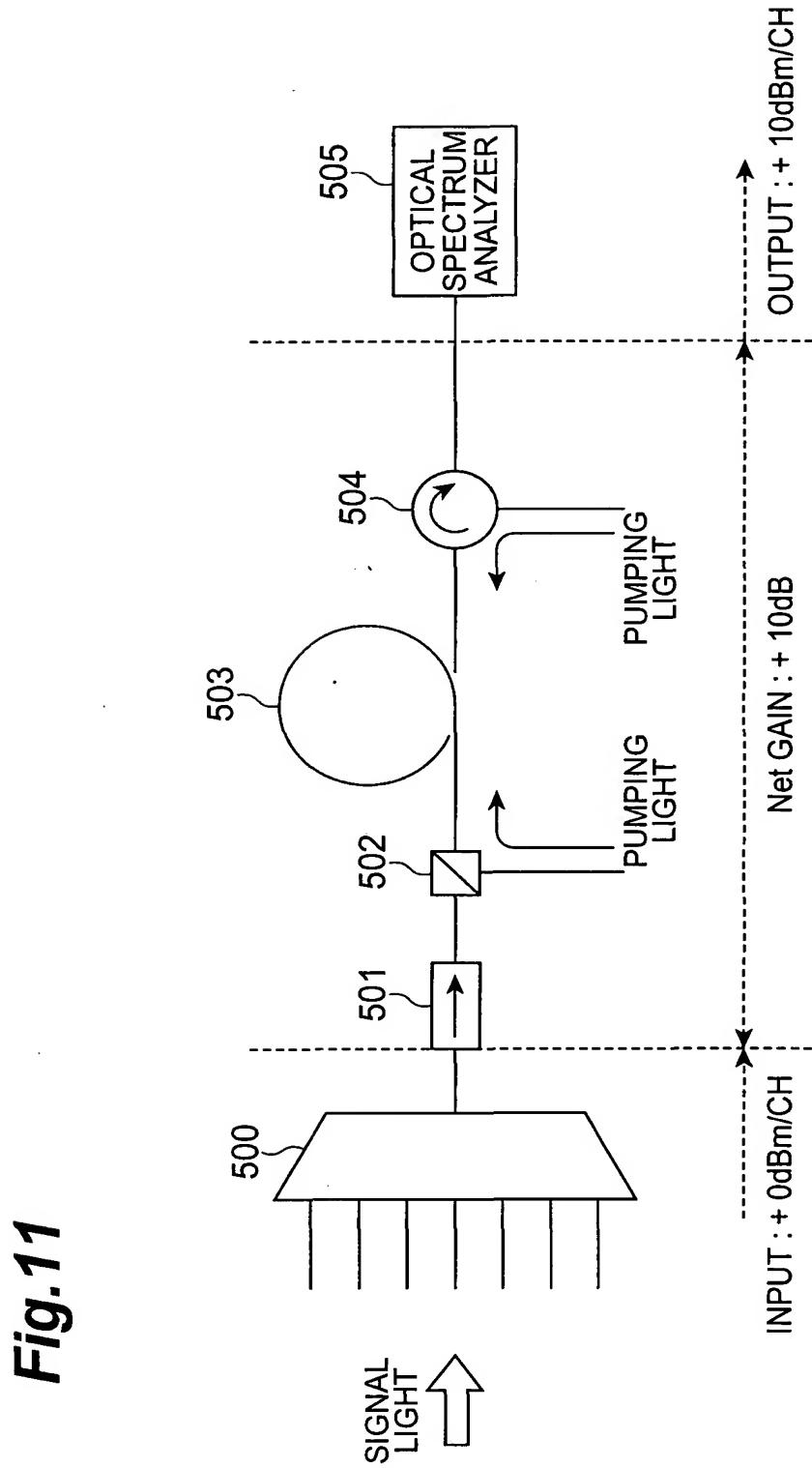


Fig.11

Fig.12

PUMPING DIRECTION	WAVELENGTH (nm)	POWER (mW)
FORWARD	1360	211.6
BACKWARD	1360	613.8
	1390	235.5
	1405	11.2
	1430	11.4
	1460	6.6
	1500	23.8

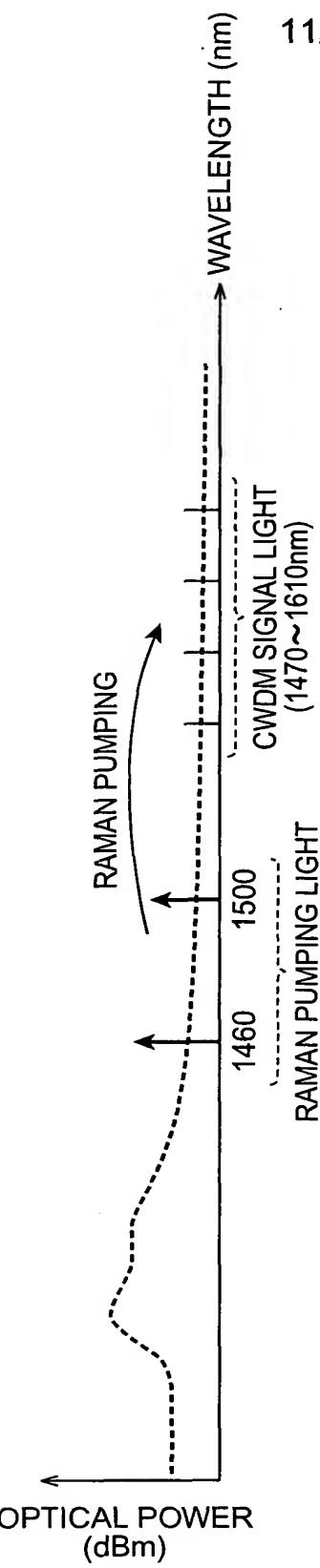
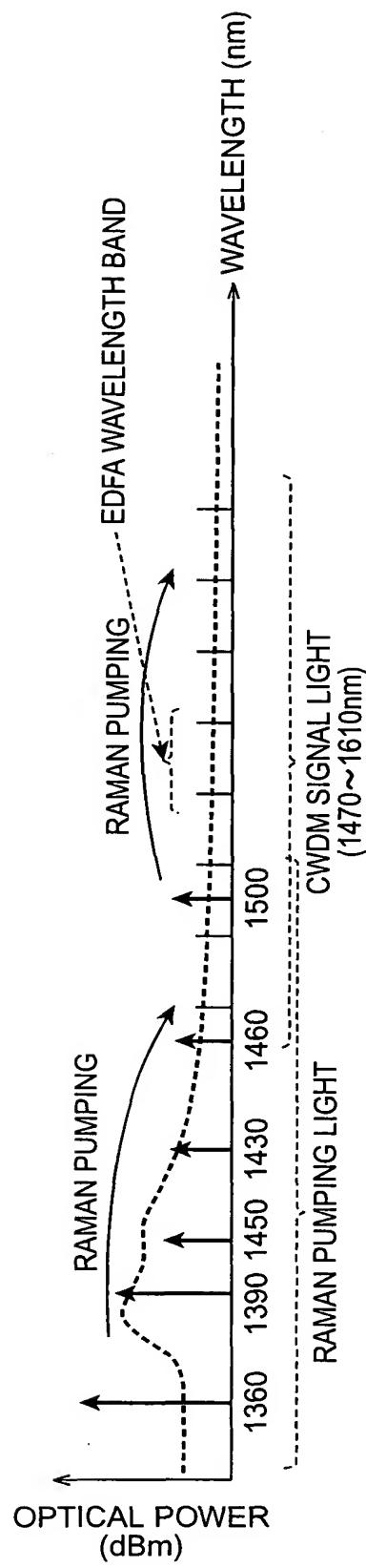
Fig. 13A**Fig. 13B**

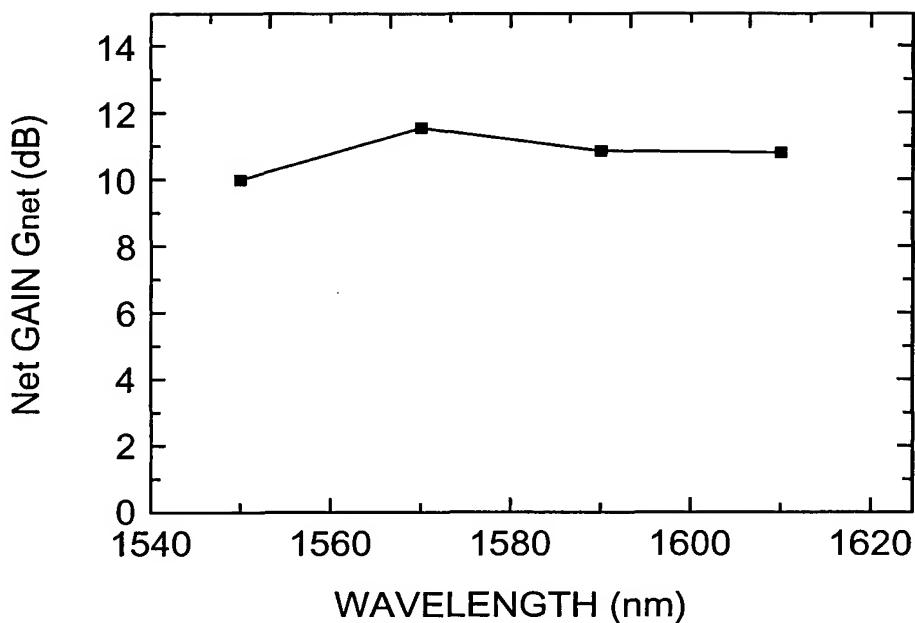
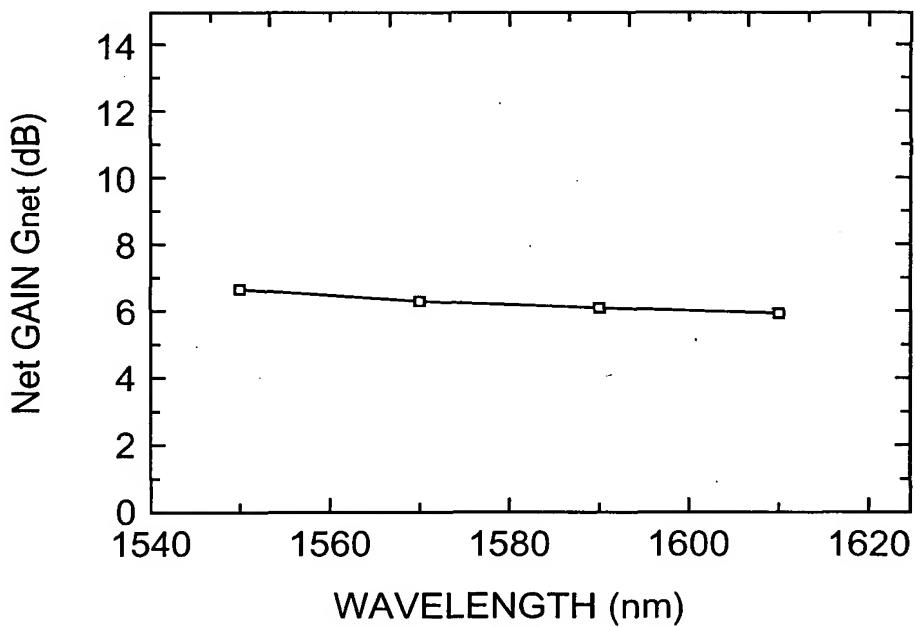
Fig. 14A**Fig. 14B**

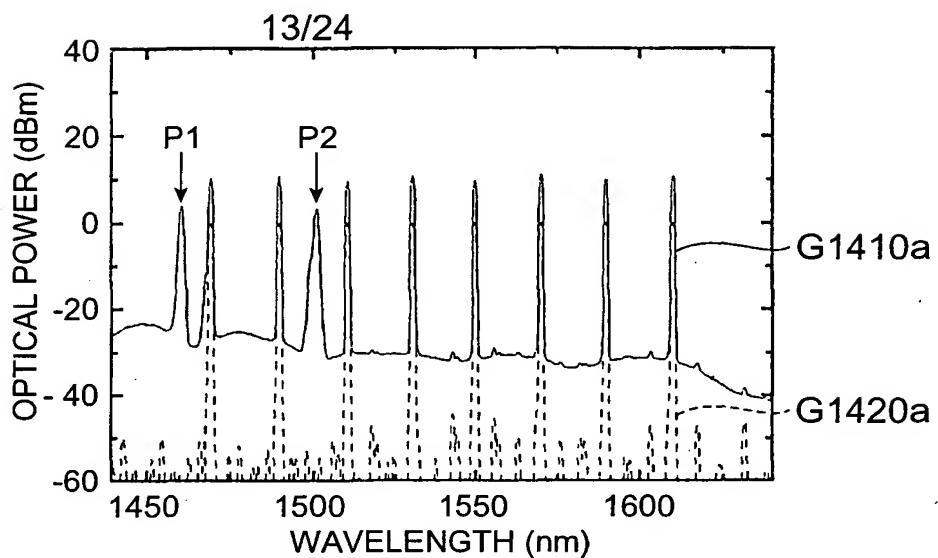
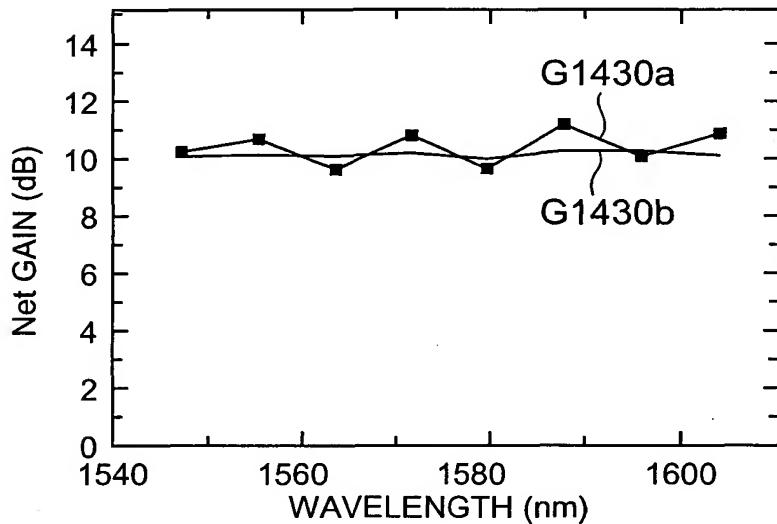
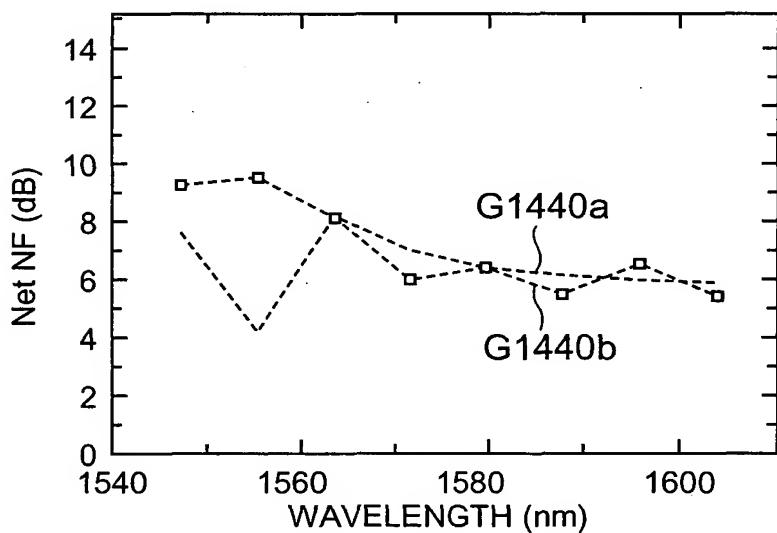
Fig. 15A**Fig. 15B****Fig. 15C**

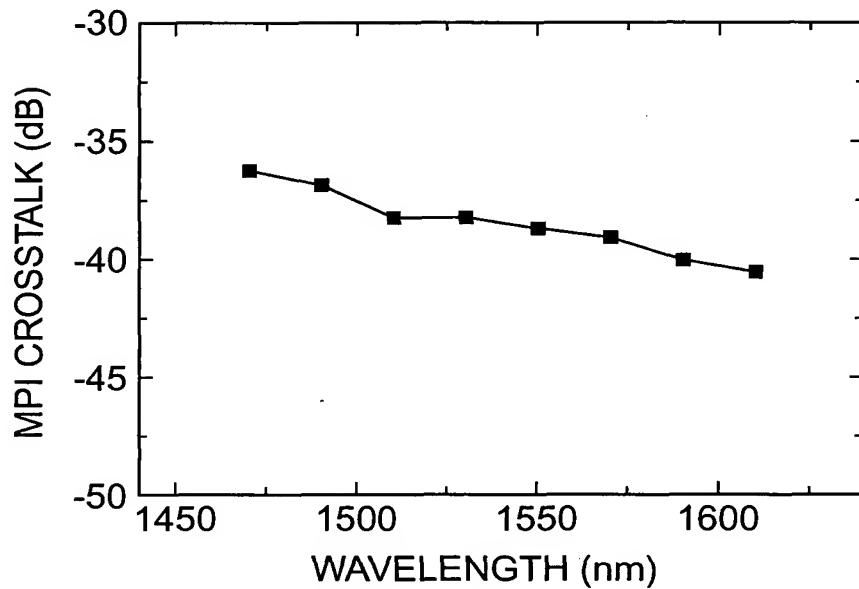
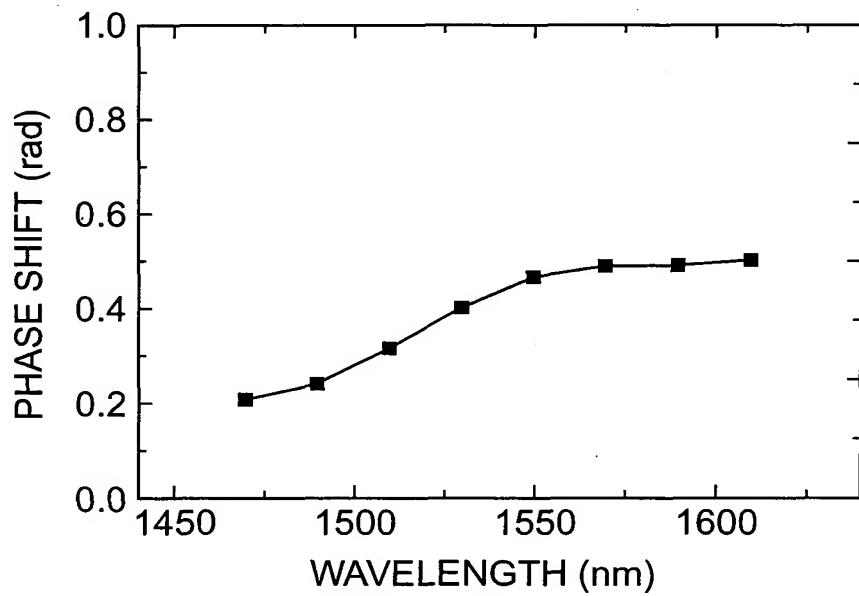
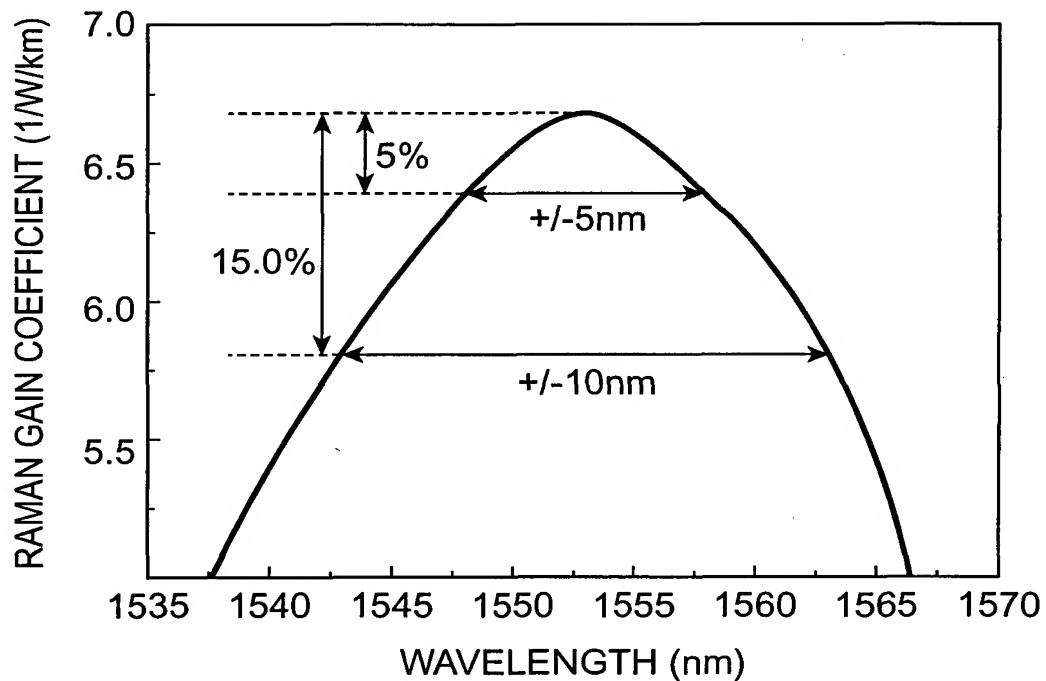
Fig. 16A**Fig. 16B**

Fig.17**Fig.18**

WAVE LENGTH OF SIGNAL LIGHT (nm) (CHANNEL SPACING:20nm)	WAVELENGTH OF PUMPING LIGHT (nm)
1470~1530	1387.5,1427.5
1550~1610	1457.5,1500
1510~1570	1422.5,1465

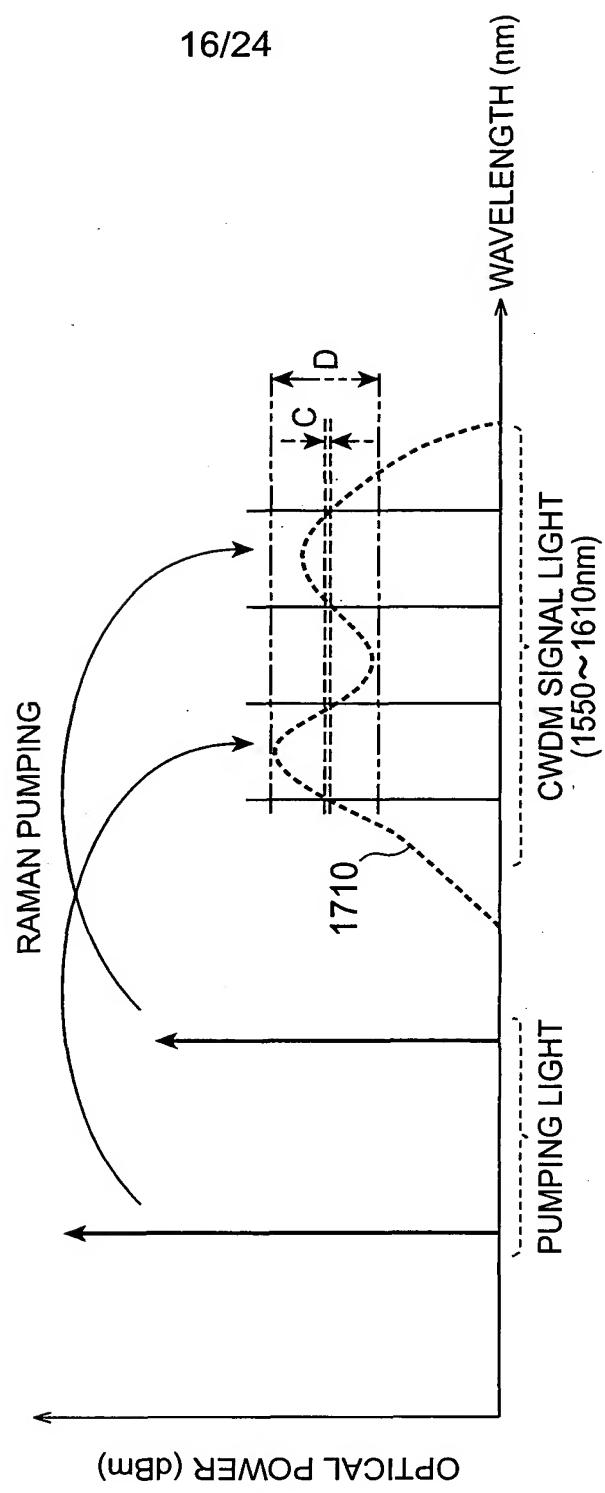


Fig.19

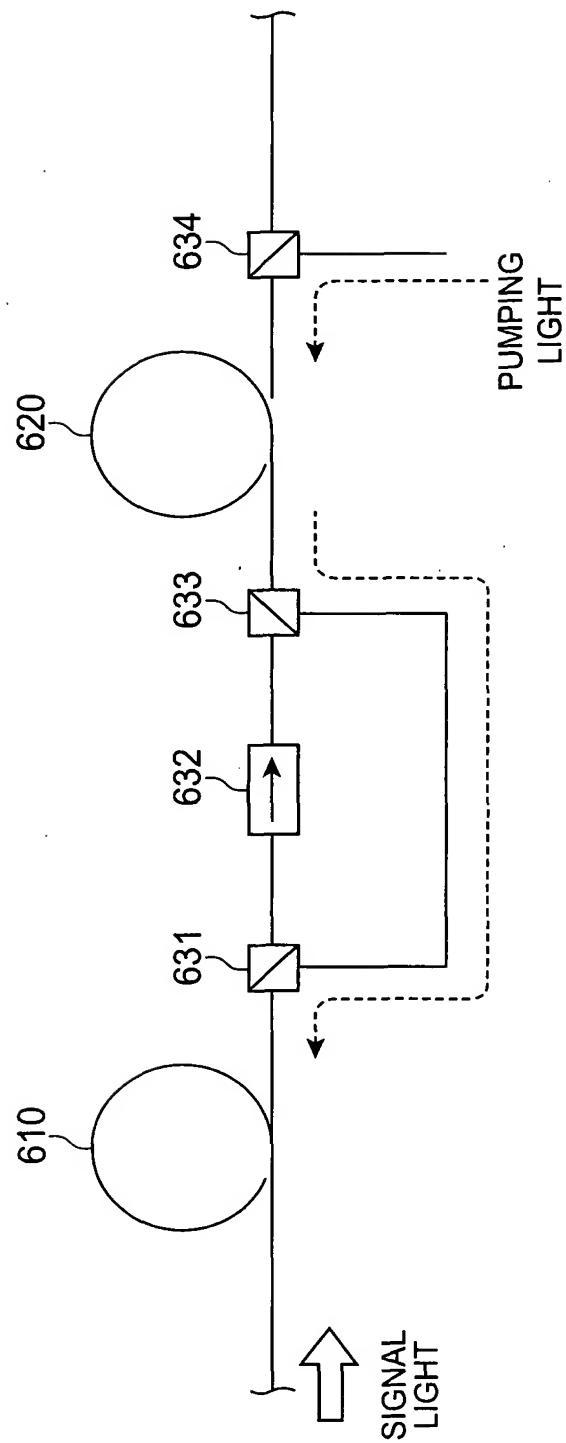


Fig.20

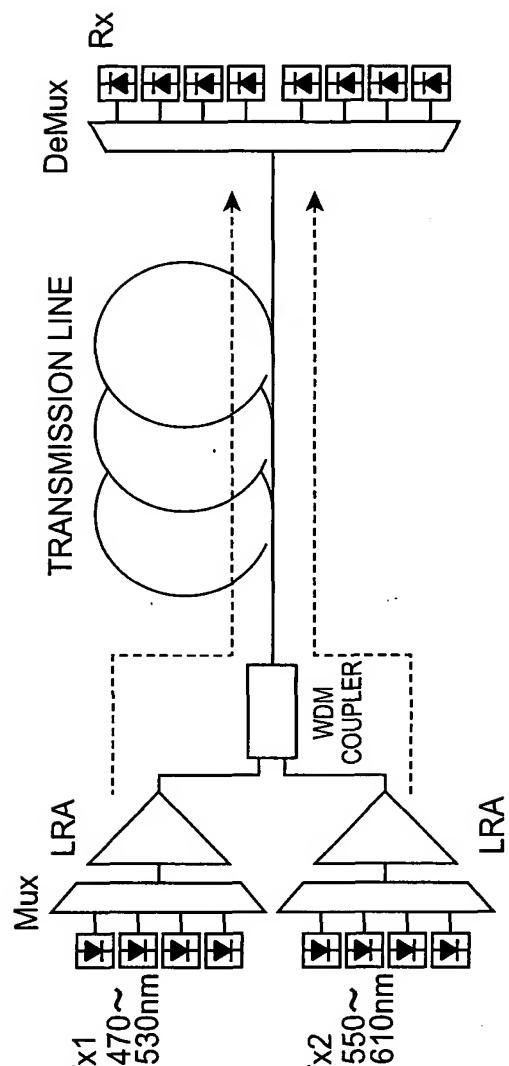


Fig.21

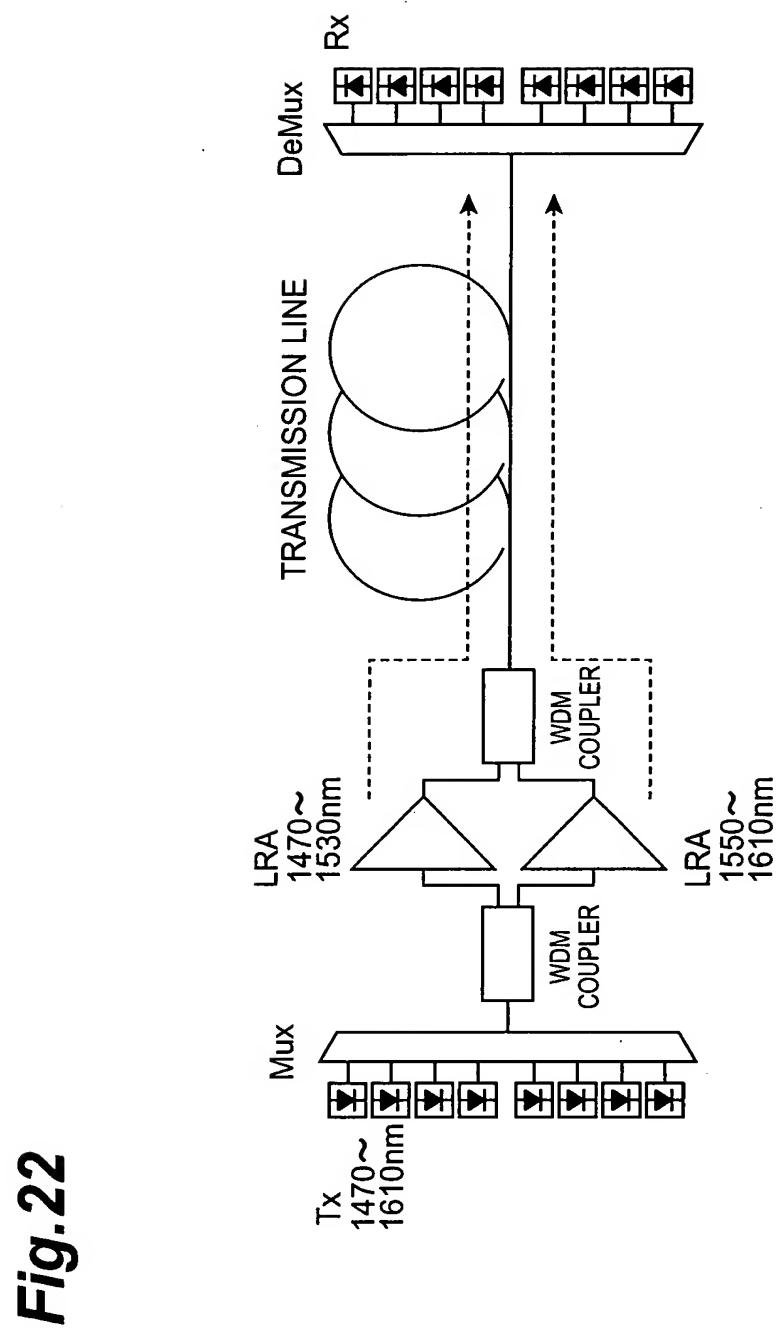


Fig. 22

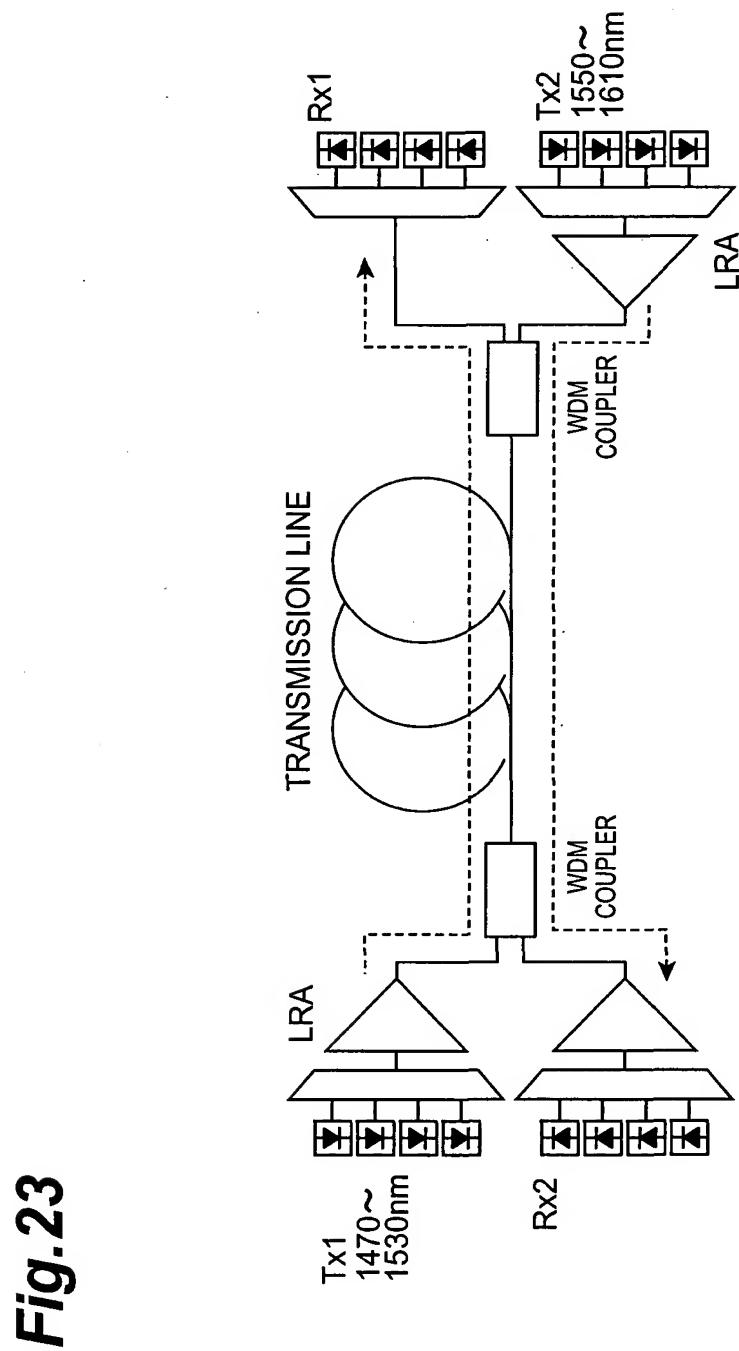


Fig. 23

